



## Stage Was Set in 2008 for Next Chapter of NASA Cleanup at and Near JPL

The year 2008 was another fruitful year of progress for groundwater cleanup. NASA and the City of Pasadena took major preparatory steps in 2008 toward construction of a 7,000 gallons-per-minute (gpm) NASA-funded groundwater treatment plant at the City-owned Windsor Reservoir near four closed drinking water wells.

As the year ended, system design and pre-construction permitting had been completed, initial landscaping was underway, and construction was expected to begin in the first part of 2009.

With the proposed Pasadena facility, NASA's three-plant treatment strategy to remove groundwater chemicals from beneath the Jet Propulsion Laboratory (JPL) and from beneath areas adjacent to JPL is now nearing full execution. Existing NASA-funded treatment plants have been removing groundwater chemicals from the source area and from the farthest reaches of the area affected by the chemicals. The new Pasadena plant would provide groundwater cleanup in the middle of the area affected.

### **Pasadena Treatment Plant - Community Involvement Efforts**

In 2008, NASA continued to focus on community outreach and involvement as integral components of the Windsor Reservoir treatment plant project. All design, construction and operation is funded by NASA, and the treatment plant will be operated by Pasadena Water & Power (PWP). As part of its public involvement effort, NASA reached out to community members who live near the site and to other interested individuals and groups. NASA also provided outreach and communication support for a June 18 community meeting on the proposed plant, a meeting sponsored by PWP.

Throughout 2008, NASA and PWP solicited public input on landscaping plans and aesthetic improvements for the Pasadena treatment facility, incorporating much of that input into the final landscaping and plant design specifications. Those specifications were reviewed and subsequently approved by the City of Pasadena, and NASA began landscaping soon thereafter. A major planting effort, including dozens of trees and more than 100 shrubs, commenced in November along the project fence line.

### **Other Outreach and Public Involvement Efforts**

During 2008, NASA also updated its groundwater cleanup Website (<http://jplwater.nasa.gov>), providing an improved search function, an updated "media room," and a separate Spanish-language section. Cleanup project staff members hosted a booth at NASA's annual Open House and worked with the Pasadena Public Library on implementing a digital Information Repository on the project. NASA also provided a number of tours of the "source-area" treatment plant onsite at JPL, the proposed construction area and landscaping plans at the Windsor Reservoir site, and specific areas of the Arroyo Seco watershed.

### **Source area Treatment System**

NASA's source area treatment system continued in 2008 to address – at its full capacity of 300 gpm – the area with the highest chemical concentrations, helping to stop chemicals from moving off of the JPL facility. By year's end, and dating from commencement of the project, more than 1,100 pounds of perchlorate had been removed from beneath JPL, using a fluidized bed reactor system with naturally occurring

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microorganisms to break down the chemical compound. More than 30 pounds of volatile organic compounds (VOCs) in the groundwater beneath the source area have also been removed, using the same liquid-phase granular activated carbon (LGAC) technology that will be used in the proposed Pasadena treatment plant. LGAC uses activated carbon beads to attract particles of VOCs for subsequent disposal at licensed off-site facilities.

#### **Lincoln Avenue Water Company System**

The LAWC system, operating at 2,000 gpm near two LAWC drinking water wells continued removing chemicals from the leading edge of the plume. It is also allowing the LAWC to continue to provide clean drinking water to its customers. Using ion exchange technology, more than 460 pounds of perchlorate had been removed from groundwater by the end of 2008. The ion exchange process, which would also be used at the Pasadena plant, runs groundwater through tanks filled with resin beads. When perchlorate touches the beads, perchlorate is exchanged with chloride and is extracted from the water. Using LGAC technology, 140 pounds of VOCs have been eliminated from LAWC groundwater since system startup.

#### **NASA's Work with Federal and State Regulatory Agencies**

Throughout the year, NASA worked closely and met frequently with federal and state regulatory agencies that supervise the cleanup. Those agencies include: the U.S. Environmental Protection Agency, the Regional Water Quality Control Board, Los Angeles Region, and the California Department of Toxic Substances Control. In addition, NASA worked with the City of Pasadena and its Water & Power department, as well as representatives from the California Department of Public Health, LAWC, Rubio Cañon Land and Water Company, Foothill Municipal Water District, the Raymond Basin Management Board and other stakeholders.

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